IN THE CLAIMS:

1. (Currently Amended) A method for controlling data transmission in a network system configured by a plurality of nodes including a first node, a second node, and a third node, wherein the first node has a plurality of ports including a first port connected to the second node and a second port connected to the third node, ~~and the first node enables data received by the first port from the second node to be transmitted from the second port to the third node,~~ and wherein each node has address information, the received data including the address information of the node to which the received data is addressed, the method comprising the steps of:

when the first node receives data, comparing at the first node the address information ~~indicating~~ stored in the first node with the address information included in the received data;

temporarily disconnecting the third node from the first node to form a first sub-network system, which includes the third node and does not include the first node, and a second sub-network system, which includes the first node, when the received data is not addressed to a downstream node including the third node; and

permitting data transmission within each of the sub-network systems.

2. (Currently Amended) The method according to claim 1, wherein the temporarily disconnecting includes dividing the network system into a plurality of sub-network systems~~, and wherein the method further comprises permitting data transmission within each of the sub-network systems~~ including the first and second sub-network systems.

3. (Original) The method according to claim 1, wherein the disconnecting step includes idling the second port.

4. (Original) The method according to claim 1, further comprising the steps of:

monitoring data transmission at each port; and

idling all of the ports when data transmission is completed at all of the ports.

5. (Currently Amended) A data transmission controller comprising:

a plurality of ports including a first port connected to a first node and a second port connected to a second node;

a network information memory for storing node information of the first and second nodes;

a packet determiner connected to the first and second ports and the network information memory for determining with the node information an addressee of data received by the first port from the first node; and

an interface control circuit connected to the packet determiner to temporarily disconnect the second node from the second port to form a first sub-network system, which includes the second node and does not include the data transmission controller, and a second sub-network system, which includes the data transmission controller, when the data is not addressed to a downstream node including the second node, the interface control circuit permitting independent data transmission within each of the sub-network systems.

6. (Canceled)

7. (Original) The data transmission controller according to claim 5, further comprising a plurality of interfaces respectively connected between the ports and the interface control circuit, wherein the interface control circuit controls the interface associated with the second port to idle the second port and temporarily terminates the connection between the second port and the second node.

8. (Original) The data transmission controller according to claim 5, wherein the interface control circuit monitors data transmission at the ports and idles all of the ports after data transmission is completed at all of the ports.

9. (Currently Amended) A ~~The~~ data transmission controller ~~according to claim 5,~~ comprising:

a plurality of ports including a first port connected to a first node and a second port connected to a second node;

a network information memory for storing node information of the first and second nodes;

a packet determiner connected to the first and second ports and the network information memory for determining with the node information an addressee of data received by the first port from the first node; and

an interface control circuit connected to the packet determiner to temporarily disconnect the second node from the second port when the data is not addressed to the second node,

wherein the data transmission controller is one of a plurality of data transmission controllers provided in each of a plurality of nodes configuring a network system, each of the nodes transmitting to other nodes a packet including a physical node number when the network system undergoes a bus reset, and wherein the network information memory stores the physical node number of each node as the node information.

10. (Currently Amended) A data transmission controller incorporated in a first node for enabling data received by a first port from a second node to be transmitted by a second port to a third node, wherein the data includes packet information containing a data origination address and a data destination address, the data transmission controller comprising:

a first interface connected to the first port;

a second interface connected to the second port;

a network information memory for storing first address information of the first node, second address information of the second node, and third address information of the third node;

a packet determiner connected to the first and second interfaces for comparing the data destination address with the second and third address information to determine an addressee of the received data; and

an interface control circuit connected to the first and second interfaces, the packet determiner, and the network information memory for controlling the first and second interfaces, wherein the interface control circuit processes the received data when the received data is addressed to the first node, transmits the received data to the third node from the second port when the received data is addressed to a downstream node including the third node, and controls the second interface when the received data is not addressed to a downstream node including the third node to idle the second port and disconnect the second port from the third node to form a first sub-network system, which includes the third node and does not include the first node, and a second sub-network system, which includes the first node, to stop data transmission by the second port to the third node, and to permit independent data transmission in each of the first and second sub-network systems.

11. (Canceled)

12. (Currently Amended) The data transmission controller according to claim 10, wherein the first node and the second node configure [[a]] the second network system~~, and wherein the interface control circuit permits independent data transmission in each of the first and second sub-network systems when the second port is idle~~.

13. (Original) The data transmission controller according to claim 12, wherein the interface control circuit idles the first and second ports when data transmission in the first and second sub-network systems is completed.

14. (Currently Amended) A method for controlling data transmission in a network system configured by a plurality of nodes including a first node, a second node, and a third node, wherein the first node has a plurality of ports including a first port connected to the second node and a second port connected to the third node, ~~and the first node enables data received by the first port from the second node to be transmitted by the second port to the third node,~~ and wherein each node has address information, the received data including the address information of the node to which the received data is addressed, the method comprising:

when the first node receives data, comparing at the first node the address information stored in [[of]] the first node with the address information included in the received data;

temporarily disconnecting the third node from the second port when the received data is not addressed to a downstream node including the third node to divide the network system into a first sub-network system, which includes the third node and does not include the first node, ~~including the third node~~ and a second sub-network system including the first and second nodes; and

permitting data transmission within ~~the first sub-network system~~ each of the sub-network systems.

15. (Previously Presented) The method according to claim 1, wherein the first node takes the received data when the received data is addressed to the first node.

16. (Currently Amended) A method for controlling data transmission in a network system configured by a plurality of nodes including a first node, a second node, and a third node, wherein the first node has a plurality of ports including a first port connected to the second node and a second port connected to the third node, ~~and the first node enables data received by the first port from the second node to be transmitted from the second port to the third node,~~ and wherein each node has address information, the received data including the address information of the node to which the received data is addressed, the method comprising the steps of:

when the first node receives data, comparing at the first node the address information stored in [[of]] the first node with the address information included in the received data;

temporarily disconnecting the third node from the first node to form a first sub-network system, which includes the third node and does not include the first node, and a second sub-network system, which includes the first node, when the received data is addressed to the first node; and

permitting data transmission within each of the sub-network systems.